

Appl.No. : 09/990,075  
Filed : November 21, 2001

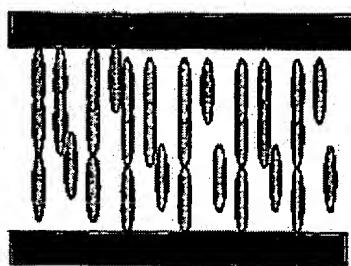
REMARKS

The previous amendments have not been entered because they raise new issues that would require further consideration and/or search. The RCE has been filed in this application wherein entry of the previous amendments is respectfully requested. Now, as claimed in the claims, "a side chain type liquid crystal polymer" is a polymer of a monomer unit (a) and a monomer unit (b), not simply comprising a mixture of these monomer units. Applicant respectfully requests reconsideration of the present application in view of the previous amendments and remarks and the following additional remarks.

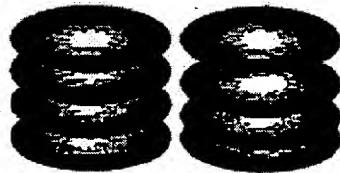
Rejection of Claims 1, 2, 9 and 10 Under 35 U.S.C. § 102

Claims 1, 2, 9 and 10 were rejected under 35 U.S.C. § 102(b) as being anticipated by US 5,730,900 (Kawata).

The Examiner asserted that Kawata discloses said liquid crystal polymer being capable of homeotropic alignment by heating on column 2, lines 55-62 and column 31, line 64 to column 33, line 3. However, contrary to the Examiner's assertion, Kawata does not disclose any liquid crystal polymers being capable of homeotropic alignment. Kawata discloses discotic liquid crystalline polymers only. Such discotic liquid crystalline polymers are not capable of homeotropic alignment.



Homeotropic alignment



Discotic liquid crystal

In the art, homeotropic alignment indicates a state of orientation where rod-like liquid crystals are oriented in a vertical direction (see the above). In contrast, discotic liquid crystals indicate the type of crystals where liquid crystal molecules have disc-like shapes (see the above). Clearly, discotic liquid crystals are not oriented in a vertical direction as

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rod-like liquid crystals are oriented. Thus, Kawata could not anticipate the invention recited in Claims 1, 2, 9, or 10.

Rejection of Claims 1, 2, 9 and 10 Under 35 U.S.C. § 102

Claims 1, 2, 9 and 10 have been rejected under 35 U.S.C. § 102(e) as being anticipated by US 6,379,758 (Hanmer et al.). The claims as amended herein could not be anticipated by Hanmer et al. as explained below.

In the present invention, a side chain type liquid crystal polymer which is capable of homeotropic alignment by heating is applied on a substrate, and then is homeotropically aligned on the substrate by heating. In contrast, in Hanmer et al., a polymerizable liquid crystalline monomer is applied on a substrate, and UV light is applied thereto to polymerize the monomer (EXAMPLE 1A). In Hanmer et al., the monomer is aligned on the substrate before polymerization, whereas in the present invention, the specific polymer is homeotropically aligned on the substrate. Thus, clearly, in Hanmer et al., alignment treatment must be excised on the monomer already applied on the substrate. This technology is equivalent to using a substrate having a vertical alignment film formed thereon. In fact, Hanmer et al. discloses “to achieve homeotropic or titled homeotropic, alignment the mesogenic material is preferably coated onto substrates carrying an alignment layer (see column 5, lines 10-12).

In addition, Hanmer et al. does not disclose the specific polymer, i.e., a side chain type liquid crystal polymer of a monomer unit (a) containing a liquid crystalline fragment side chain and a monomer unit (b) containing a non-liquid crystalline fragment side chain as recited in Claim 1.

Thus, Hanmer et al. could not anticipate the invention recited in Claims 1, 2, 9, or 10.

CONCLUSION

In light of the foregoing, it is respectfully submitted that the present application is in condition for allowance. Claims 14-17 have been withdrawn from consideration as being directed to a non-elected species. If generic claims are allowed, rejoinder of Claims 14-17 is respectfully requested. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

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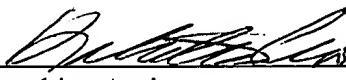
Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: April 7, 2004

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